

Biochemical changes in a...

S/020/61/141/001, 019/021
B103/B101

soluble ones increase. High-molecular polyphosphates are assumed to be reduced to low-molecular fragments and orthophosphate to provide phosphorus and energy for cell division. Phosphoric esters of sugar show no periodic synthesis. Polysaccharide increases exponentially. Phospholipids are cyclically synthesized. N. D. Iyerusalimskiy, Corresponding Member AS USSR, is thanked for his interest in the work. There are 4 figures and 12 references: 4 Soviet and 8 non-Soviet. The three most important references to English-language publications read as follows: Ref. 4: A. Campbell, Bacteriol. Rev., 21, 261 (1957); Ref. 5: O. H. Scherbaum, Ann. N. Y. Acad. Sci., 90, 565 (1960). Ann. Rev. Microbiol., 14, 283 (1960); Ref. 6: K. Burton, Biochem. J. 62, 315 (1956).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University im. M. V. Lomonosov)

SUBMITTED: July 4, 1961

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Biochemical changes in a...

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NH₂ nitrogen of amino acids, however, considerably decreases before cell division. This is probably due to an intense consumption of free amino acids in the protein synthesis. The considerable increase of amino acids during cell division is probably due to a slow protein synthesis at this stage. It was also found that DNA synthesis during synchronization took place periodically, i. e., largest amounts of DNA were accumulated before cell division. After division, it is reduced during two cycles in exact harmony with the rhythm of cell division. With RNA, these fluctuations are less evident and only noticeable during the first cycle. Calculated per cell, this periodicity is very clear and indicates the participation of RNA in cell mass synthesis, especially that of proteins. During cell division, DNA is not synthesized, and as far as there is an RNA synthesis during that period it proceeds very slowly. DNA synthesis in *Azobacter* cells is assumed to take place shortly before cell division. The amount of acid-soluble mononucleotides increases rapidly before each cell division, then a sudden drop follows. This holds especially for diphosphates and triphosphates of nucleotides which increase and decrease together with nucleic acids. Other phosphorus compounds also have cyclic fluctuations. During cell division, polyphosphates insoluble in acids decrease, whereas acid-Card 3/4

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3.0 - 3.5 liters each were taken out for analytical studies. (0) Initial sample; (I) after cooling; (II) before first division; (III) after first division; (IV) during second lag phase; (V) before second division; (VI) in the middle of second division; (VII) at the end of second division, and (VIII) before third division. Nitrogen and phosphorus compounds were fractionated and quantitatively determined by methods described earlier (A. N. Belozerskiy et al., *Mikrobiologiya*, 26, 409 (1957); G. N. Zaytseva et al., *Mikrobiologiya*, 28, 675 (1959); A. N. Belozerskiy et al., *Biokhimiya*, 24, 1054 (1959)). After fractionation, mononucleotides, RNA, and DNA, were spectrophotometrically measured by C.F-4(SF-4). The DNA amount was chemically determined according to K. Burton (Ref. 3, see below). The accumulation of the total nitrogen per 100 milliliters of nutrient medium, and biomass increase were found to take place almost simultaneously. Since the total nitrogen of the culture increases exponentially, the nitrogen fixation is also assumed to proceed exponentially. Calculated for the first division cycle of the whole culture, protein nitrogen shows a slight tendency to increase by steps. Calculated for one cell, this tendency becomes evident: The protein-N amount increases at the end of each lag phase and decreases noticeably immediately after division. The amount of

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AUTHORS: Zaytseva, G. N., Khmel', I. A., and Bolozerskiy, A. N.,
Corresponding Member AS USSR

TITLE: Biochemical changes in a synchronous culture of *Azotobacter vinelandii*

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 3, 1961, 740 - 743

TEXT: The developmental cycle of a cell was studied in an *Azotobacter vinelandii* culture with synchronous cell division (Refs. 4 and 5, see below). This culture is most suitable for studies on biochemical changes of important macromolecular substances and their preliminary stages of synthesis in the vital process of every cell. Synchronization (two cycles) was caused by the action of low temperatures on a culture contained in a reaction vessel of 45 liters (Refs. 4 and 5, see below). As soon as $\sim 2 \cdot 10^7$ cells per milliliter of nutrient medium were reached, the culture was cooled down to 5 - 7°C within 20 - 25 min by flowing water. For 1 hr it was kept at this temperature. Vapor was passed through to elevate the temperature rapidly to 30°C. The cells were counted in a Goryayev chamber [Abstracter's note: Chamber not stated.], and the biomass was nephelometrically measured. Samples of

Card 1/4

ZAYTSEVA, G.N.; LI TSZYUN-ING [Li Chün-ying]

Effect of roentgen rays on phosphorus and nitrogen metabolism in
Azotobacter agilis 22-D. Mikrobiologiya 30 no.2:197-202 Mar-Apr '61.
(MIRA 14:6)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo
universiteta imeni M.V.Lomonosova.

(AZOTOBACTER)	(X RAYS—PHYSIOLOGICAL EFFECT)
(PHOSPHORUS METABOLISM)	(NITROGEN METABOLISM)

ZAYTSEVA, G.N.; AGATOVA, A.I.; BELOZERSKIY, A.N.

Some data on the relationship of nitrogen fixation with respiration
and oxidative phosphorylation in *Azotobacter vinelandii*. *Biokhimiia*
26 no.2:338-339 Mr-Apr '61. (MIRA 14:5)

1. The Faculty of Biology and Soil Science, State University, Moscow.
(AZOTOBACTER) (NITROGEN--FIXATION)
(OXIDATION, PHYSIOLOGICAL)

ZAYTSEVA, G.N.; FEOLOVA, L.Yu.

Effect of chloramphenicol on phosphorus and nucleic acid metabolism in
Azotobacter vinelandii. Biokhimiia 26 no. 1:200-208 Ja-F '61.
(MIRA 14:2)

1. Faculty of Biology and Soil Sciences, State University,
Moscow.

(CHLORAMPHENICOL) (AZOTOBACTER) (PHOSPHORUS METABOLISM)
(NUCLEIC ACIDS)

ZAYTSEVA, G. N., (USSR)

"Oxidative Phosphorylation and Synthesis of Polyphosphates
in *Azotobacter vinelandii*."

Report presented at the 5th Int'l. Biochemistry Congress, Moscow,
10-16 Aug 1961.

ZAYTSEVA, G.N.; BELOZERSKIY, A.N.

Formation and consumption of polyphosphates due to the action of
an enzyme isolated from *Azotobacter vinelandii*. Dokl. AN SSSR 132
no. 4:950-953 Je 60. (MIRA 13:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
2. Chlen-korrespondent AN SSSR (for Belozerskiy)
(AZOTOBACTER)
(PHOSPHATES)
(CHEMISTRY, ORGANIC--SYNTHESIS)

ZAYTSEVA, G.N.; BELOZERSKIY, A.N.; NOVOZHILOVA, L.P.

Effect of calcium ions on nitrogen and phosphorus metabolism in
Azotobacter vinelandii. Mikrobiologiya 29 no.3:343-350 My-Je '60.
(MIRA 13:7)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta
im. M.V. Lomonosova.

(AZOBACTER)	(CALCIUM-----PHYSIOLOGICAL EFFECT)
(NITROGEN METABOLISM)	(PHOSPHORUS METABOLISM)

RABOTNOVA, I.L.; ZAYTSEVA, G.N.; MINEYEVA, L.A.

Study of the lag phase in micro-organisms. Report No.3: Changes in the cells of Azotobacter grown on molecular and ammonia nitrogen. Mikrobiologiya 28 no.5:683-689 S-O '59. (MIRA 13:2)

1. Kafedra mikrobiologii i kafedra biokhimii rasteniy Moskovskogo gosudarstvennogo universiteta im M.V. Lomonosova.
(AZOTOBACTER culture)

ZAYTSEVA, G.N.; BELOZERSKIY, A.N.; BYKHOVSKIY, V.Ya.

Chemistry of Azotobacter. Report No.8: study of free amino acids and mononucleotides in Az. agilis 22-D and their relation to the age of the culture and sources of nitrogen nutrition. Mikrobiologiya 28 no.5:675-682 S-O '59. (MIRA 13:2)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(AZOTOBACTER chem.)
(AMINO ACIDS chem.)
(NUCLEOSIDES AND NUCLEOTIDES chem.)

RABOTNOVA, I.L.; ZAYTSEVA, G.N.; MINEYEVA, L.A.

Study of the lag-phase in micro-organisms. Report No.2: Changes in cells of *Torula utilis* and *Pseudomonas fluorescens* during the lag phase. *Mikrobiologiya* 28 no.4:481-487 Jl-Ag '59. (MIRA 12:12)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(CRYPTOCOCCUS)
(PSEUDOMONAS)

ZAYTSEVA, G.N.; BELOZERSKIY, A.N.; AFANAS'YEVA, T.P.

Chemistry of Azotobacter. Part 7: Studies on polysaccharides in three Azotobacter species and their relation to culture medium composition and nitrogen source [with summary in English]. Mikrobiologiya 28 no.1: 58-63 Ja-F '59. (MIRA 12:3)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni M.V. Lomonosova.

(AZOTOBACTER, metabolism,
polysaccharides, eff. of nitrogen source & medium
content in various species (Rus))

(POLYSACCHARIDES, metab.
Azotobacter, eff. of nitrogen source & medium content
in various species (Rus))

ZATSEVA, G.N.; BILCHERSKIY, A.N.; NOVOZHILOVA, L.P.

Phosphorus compounds of *Azotobacter vinelandii* during the development of the culture. *Biokhimiia* 24 no.6:1054-1065 N-D '59.
(MIRA 13:5)

1. The Faculty of Biological and Soil Sciences, the State University, Moscow.

(PHOSPHATES metab.)

(AZOTOBACTER metab.)

ZAYTSEVA, G.N.; BELOZERSKIY, A.N.

Electrophoretic study of protein components of Azotobacter as related to the species and age of culture and the source of nitrogen nutrition [with summary in English]. Biokhimiia 24 no.1:133-143 Ja-P '59.
(MIRA 12:4)

1. Faculty of Biology and Soil Sciences, Moscow State University.
(AZOTOBACTER, metab.
proteins, electrophoresis, eff. of species, culture
age & nitrogen sources (Rus))
(PROTEINS, metab.
Azotobacter, electrophoresis, eff. of species, culture
age & nitrogen sources (Rus))

ZAYTSEVA, G.H., BELOZHERSKIY, A.N..

Chemistry of Azotobacter. Report no.4: Carbohydrate composition of Azotobacter agile 22-D as related to the age of the culture [with summary in English]. Mikrobiologiya 27 no.4:416-421 Jl-Ag '58 (MIRA 11:9)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(AZOTOBACTER, metabolism
agilis, carbohydrate composition in relation to age of culture (Rus))
(CARBOHYDRATES, metabolism
Azotobacter agilis composition in relation to age of culture (Rus))

ZAYTSEVA, G.N., BELOZERSKIY, AN.

Chemistry of Azotobacter. Report No.5: Studying phosphorus compounds of Azotobacter agile and their relation to the age of the culture and the source of nitrogen nutrition. [with summary in English]. Mikrobiologiya 27 no.3:308-315 My-Je '58 (MIRA 11:9)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.

(AZOTOBACTER, metabolism.

agile, phosphates (Rus))

(PHOSPHATES, metabolism

Azotobacter agile (Rus))

ZAYTSEVA, G.N.

BELOZERSKIY, A.N., IMSHENETSKIY, A.A., ZAYTSEVA, G.N., PEROVA, K.Z.

Comparative morphology and biochemistry of mucoid and matt and dull cultures of *Azotobacter chroococcum* [with summary in English]. *Mikrobiologiya* 27 no.2:150-156 Mr-Apr '58 (MIRA 11:5)

1. Institut mikrobiologii Akademii nauk SSSR i Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.

(AZOTOBACTER, culture
chroococcum, comparative morphol. & biochem. of
slimy and dull cultures (Rus))

BELOZERSKIY, A.N.; ZAYTSEVA, G.N.; TYULENEVA, N.P.

Chemistry of Azotobacter. Report No.4: Amino acid composition of three Azotobacter species cultured on different sources of nitrogen nutrition [with summary in English]. Mikrobiologiya 27 no.1:7-11 Ja-F '58. (MIRA 11:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova, Biologo-pochvennyy fakul'tet.

(AZOTOBACTER, metab.

amino acids of 3 species cultured with different nitrogen sources (Rus)

(AMINO ACIDS, metab.

Azotobacter, 3 species cultured with different nitrogen sources (Rus)

ZAYTSEVA, G.N., TYULENEVA, N.P.

Quantitative determination of amino acids on chromatograms through
the formation of derivatives with ninhydrin. Lab.delo 4 no.3:24-30
My-Je '58 (MIRA 11:5)

1. Iz kafedry biokhimii rasteniy biologo-pochvennogo fakul'teta
Moskovskogo gosudarstvennogo universiteta.

(AMINO ACIDS)

(CHROMATOGRAPHIC ANALYSIS)

(NINHYDRIN)

RAYTSEVA, G.N.; BELOZERSKIY, A.N.

Chemistry of Azotobacter. Report No.3: Study on the nucleic acid content of Azotobacter as related to species, culture growth and sources of nitrogen [with summary in English]. Mikrobiologiya 26 no.6:722-728 N-D '57. (MIRA 11:3)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.

(AZOTOBACTER, metabolism,
nucleic acids (Rus))

(NUCLEIC ACIDS, metabolism,
Azotobacter (Rus))

culture and composition
studied by paper chromatography (determination
of the nucleic acids was made in toto, without

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13

General Microbiology. Physiology and Biochemistry. F

Abs Jour: Ref Zhur-Biol., No 2, 1959, 5445.

Abstract: preliminary separation of the preparations).
No changes were found in the RNA composition
of the cells of *A. agile* in the latent, logarithmic,
and stationary phases of growth on a medium with ammonia
and molecular nitrogen. The composition of the total RNA
of three *Azotobacter* species was similar; the differences
discovered did not exceed the average error of the method.
The ratio of guanine / cytosine / adenine / thymine in DNA
of *A. agile*, *A. vinelandii* and *A. Chroococcum* was, respectively,
1.21-1.23, 1.28, and 1.34-1.35, which served the authors as a
basis for drawing conclusions as to the possible specificity of
the DNA studied. -- T. I. Tikhonenko.
Parts I, II - see RZhBiol., 1958, No 71901-71902.

Card 2/2

USSR / Microbiology. General Microbiology. Physiol- F-1
ogy and Biochemistry.

Abs Jour: Ref Zhur-Biol., No 16, 1958, 71902.

Abstract: amino acid composition of the protein of A. agile
cultures which fixed atmospheric nitrogen and
were cultivated in ammonium nitrogen. -- T. A.
Kalininskaya.

Card 3/3

USSR / Microbiology. General Microbiology. Physiol- F-1
ogy and Biochemistry.

Abs, Jour: Ref Zhur-Biol., No 16, 1958, 71902.

Abstract: composition of the azotobacter changes, depending on the developmental phase of the culture. Thus, in the latent phase the content of a whole series of amino acids decreases, and the quantity of amino acids of an alkaline character (arginine, lysine, histidine) increases. In the log and stationary phases the quantity of alkaline amino acids decreases. The decrease of the quantity of a series of amino acids in the latent phase (especially tryptophan, dicarboxylic acid, proline, alanine, glycocoll and serine), is possibly connected with the use of some of them in the biosynthesis of nucleic acids. The authors found no essential quantitative difference in the

Card 2/3

USSR / Microbiology. General Microbiology. Physiol- E-1
ogy and Biochemistry.

Abs Jour: Ref Zhur-Biol., No 16, 1958, 71902.

Author : ~~Zaytseva, G. N.~~; Belozerskiy, A. N.

Inst : Not given.

Title : Chemistry of Azotobacter. II. Amino-acid Comp-
osition of Azotobacter Agile Depending on the
Age of Culture.

Orig Pub: Mikrobiologiya, 1957, 26, No 5, 533-540.

Abstract: 19 amino acids were identified and quantitatively
determined in the composition of A. agile pro-
teins; in addition, a series of unidentified com-
pounds were found in the chromatograms which gave
a color reaction with ninhydrin. The basic mass
of the Azotobacter proteins are mixed proteins
of a non-alkaline character. The amino acid

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USSR / Microbiology. General Microbiology. Physiol- F-1
ogy and Biochemistry.

Abs Jour: Ref Zhur-Biol., No 16, 1958, 71901.

Author : Belozerskiy, A. N.; Zaytseva, G. N., Gavrilova,
L. P., Mineyeva, L. V.

Inst : Not given.

Title : Chemistry of Azotobacter. I. Nitrogenous Sub-
stances of Azotobacter.

Orig Pub: Mikrobiologiya, 1957, 26, No 4, 409-417.

Abstract: The quantity of protein compounds in an Azoto-
bacter cell (A. agile, A. vinelandii, A. chroo-
coccum were investigated) changes during the
development cycle from maximal in the latent
phase to minimal at the end of the log phase;
it did not depend essentially on the source of
the nitrogen. The RNA quantity, being minimal

Card 1/2

ZAYTSEVA, G.N.; AFANAS'YEVA, T.P.

Descending paper filter chromatography in quantitative determination
of carbohydrates [with summary in English]. Biokhimiia 22 no.6:
1035-1042 N-D '57. (MIRA 11:2)

1. Biologo-pochvennyy fakul'tet Moskovskogo universiteta im. M.V.
Lomonosova.

(CARBOHYDRATES, determination,
descending paper filter chromatography (Rus))

ZAYTSEVA, G. N.

Use of paper chromatography for analysis of complex carbohydrates. G. N. Zaytseva (State Univ., Moscow). *Trudy Kazansk. Akad. Nauk, Akad. Nauk S.S.S.R., Inst. Khim.* 1 Anal. Khim. 6, 478-82 (1958); cf. Partridge, *C.A.* 44, 4876. Paper chromatography was used for the separation of carbohydrates entering into the specific polysaccharides of dysentery bacteria (various strains). The polysaccharides (10-100 mg.), sep'd. from bacteria, were hydrolyzed by $N H_2SO_4$ 5-10 hrs. at 100° . The H_2SO_4 was added until the soln. was weakly acidic and the hydrolyzate evaporated in vacuum to a small vol. A sample containing 10-40 mg. of each sugar was placed on the paper which was developed with H_2O : $AcOH$: H_2SO_4 (4:1:1) for 24 hrs. at 25° . This solvent gives good sep'n. of galactose, mannose, xylose, ribose, rhamnose, glucuronic acid, and galacturonic acid. For sep'n. of glucose from galactose Phosphate buffer was used. In the specific polysaccharide of "complete antigen" of *Shigella* (strain 1282) was found galactose, rhamnose, and glucose. Also from these bacteria was sep'd. a polysaccharide-protein complex, the polysaccharide of which contained arabinose and uronic acid in addn. to the 2 sugars found before. Amino hydrogen phthalate (1) was the best color developer. The solvent system must be neutral or acid. The $AcOH$ must be pure and not give a rose color with disid. $PhNH_2$. Before development the chromatogram was dried in air until the $AcOH$ odor was gone. After a freshly prepd. soln. of 1 was applied the chromatogram was heated not longer than 5 min. at 100° . Aldopentoses give a clear red, but aldohexoses, deoxy sugars, and uronic acids give different greens and browns.

Barilla Mayerle

ZAYTSEVA, G. N.

ZAYTSEVA, G. N. -- "Chemical Study of Antigenic and Immunogenic Groups of Dysentery Bacteria." Sub 21 Nov 52, Moscow Order of Lenin Institute named M. V. Lomonosov. (Dissertation for the Degree of Candidate in Biological Sciences).

SO: Vechernaya Moskva January-December 1952

BELOZERSKIY, A.N.; ZAYTSEVA, G.N.

Antigenic fractions of enteric bacteria. Doklady Akad. nauk SSSR
84 no.4:769-772 1 June 1952. (CINL 25:4)

1. Presented by Academician A. I. Oparin 8 April 1952. 2. Soil
Biology Institute, Moscow State University imeni V. M. Lomonosov.

YERMOKHINA, T.M.; ZAYTSEVA, G.N.; BELOZERSKIY, A.N., akademik

Specificity of methionine activizing enzymes and ribonucleic acids
accepting methionine in various species of microorganisms. Dokl.
AN SSSR 149 no.6:1438-1441 Ap '63. (MIRA 16:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Methionine) (Nucleic acids) (Enzymes)

ZAYTSEVA, G.N.

Enzymatic RNA synthesis as related to DNA in a synchronous culture of
Azotobacter vinelandii. Dokl. AN SSSR 150 no.1:176-179, My '63.
(MIRA 16:6)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom A.N.Belozerskim.
(Nucleic acids) (Azotobacter)

CHZHAO BAN-TIN [Chao Pang-t'ing]; SYUY CHAN-FA [Hsü Ch'ang-fa];
BELOZERSKIY, A.N., akademik; ZAYTSEVA, G.N.

Study of some nucleotide-peptides in the process of development
of Azotobacter vinelandii. Dokl. AN SSSR 146 no.4:937-940
0 '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Azotobacter) (Peptides)

PLATONOVA, O.P.; ZAYTSEVA, G.M.

Uncompensated potentiometric method for determining copper with
the aid of salicylaldoxime. Zav.lab.22 no.2:165-166 F '56.

(Oximes) (Copper--Analysis) (Potentiometric analysis) (MLRA 9:6)

ZAYTSEVA, G.M.

Potentiometric unsaturated method of copper determination with salicylaldehyde. Qu. I. Platonova and G. M. Zaytseva. *Zhurnal Anal. Khim.* 29: 100-101 (1954). Cu potentiometric titration with salicylaldehyde, with a bi-metallic electrode pair and at a pH 4.0, is much quicker than any other highly accurate Cu method. Cu in steel and cast iron is detd. in a NaF soln. at the same pH, without filtering off the Fe fluoride. The pptn. of Fe is made necessary by the formation of complex Fe(III) salicylate in an AsO_4^{3-} soln.; 1-2% Fe does not interfere with the titration. Not over 15-20 min. time is required for a single Cu detn., and the time is reduced to 10 min. with a larger no. of detns. SO_4^{2-} , Cl^- , NO_3^- , and CH_3COO^- do not affect the results.

W. M. Sternberg

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John

W. M. Sternberg

ZAYTSEVA, G.M.

2839 Potentiometric non-compensated method for determining copper by means of salicylaldoxime. O. P. Zhuravskaya and G. M. Zaytseva. Zhurnal. Lab. Khim., 1954, 28 (3), 189-190. In Russian. Determines Cu in aluminum and magnesium alloys and bronzes. The sample (0.25 to 1 g) is dissolved in dil. HCl (1 + 1) with the addition of a few drops of dil. HNO₃ (1 + 1), dil. HNO₃ (1 + 1) or aqua regia. The solution is evaporated to a syrup, which is then dissolved in water. The soln. or a suitable aliquot portion (25 ml), is mixed with 15 ml of 20 per cent. ammonium acetate soln. and then with NaCl to saturation. The Cu is titrated potentiometrically with a standard soln. of salicylaldoxime, with tungsten-platinum electrodes. To determine Cu in plating baths, a sample containing 0.01 to 0.03 g of Cu is evaporated with HCl or H₂SO₄ to destroy cyanides, the residue is treated with ammonium acetate and NaCl as described above, and the soln. (120 ml) is titrated with 1 per cent. salicylaldoxime soln. The titrant is prepared by adding dropwise 95 ml of water at 30° C to a soln. of 1 g of salicylaldoxime in 5 ml of ethanol. There is no interference from SO₄²⁻, Cl⁻, NO₃⁻, Pb, metastannic acid and small amounts of Fe. G. S. Smith

ZAYTSEVA, G.I.

EXCERPTA MEDICA Sec 7 Vol.12/6 Pediatrics June 58

1718. PROPHYLAXIS OF CANDIDA-MYCOSIS OF INTERNAL ORGANS IN CHILDREN (Russian text) - Zaytseva G.I. Dept. of Pediat., Inst. for Post-graduate Study, Leningrad - VOP. PEDIAT. 1957, 1 (41-45)

Cases of candida-mycosis of the internal organs have become increasingly more frequent for some time past, especially in children of early age. The disease is connected with the predisposition of children to dystrophic states and to polyhypovitaminosis, and also sometimes with the use of antibiotics. There are a number of conditions which change the reactivity of the child who is thereby rendered defenceless against *Candida albicans*. In some cases children are actually born in a state of latent polyhypovitaminosis due to irrational and unbalanced nutrition of gravaidae. It is very necessary therefore to ensure high quality food for pregnant women and not to admit of any restriction therein except on strict medical indications, and even then only for a short time. The administration of supplementary vitamin preparations is necessary. Also important are the nourishment and the supplementary vitaminization of parturient, puerperal and lactating women. Rational dietetics and vitaminization of children from the earliest days of life, especially during illness, are of great importance. The prevention and early diagnosis of polyhypovitaminosis in children are important factors in the fight against fungal diseases. Antibiotics should be given to pregnant or lactating women only in accordance with strictest indications. The practice of freely giving antibiotics to children 'prophylactically' in the early postnatal period is very harmful. Misuse of antibiotics is a potent factor in the development of candida-mycoses.

Kirkevich - Moscow (S)

ZAYTSEVA, G.I., dotsent; SAVELOVA, Ye.M., kand.med.nauk

Wissler's allergic subsepsis. *Pediatrics* 41 no.5:28-33 My '62.

(MIRA 15:5)

1. Iz 2-y kafedry pediatrii (zav. - dotsent G.I. Zaytseva)
Leningradskogo instituta usovershenstvovaniya vrachey imeni
S.M. Kirova (i. o. rektora - dotsent A.V. Markov) i Detskoy
bol'nitsy imeni N.K. Krupskoy (glavnyy vrach - zasluzhennyy vrach
RSFSR A.I. Chezhina).

(ALLERGY)

(SEPTICEMIA)

ZAYTSEVA, Galina Ivanovna; MAZHINSKAYA, V.P., red.; BUGROVA, T.I.,
tekhn. red.

[Artificial infant feeding (during the first year of life)]
Iskusstvennoe vskrmlivanie rebenka (pervogo goda zhizni).
Leningrad, Medgiz, 1962. 46 p. (MIRA 16:1)
(FEEDING, ARTIFICIAL) (INFANTS--NUTRITION)

BEZRUKOVA, V.N.; ZAYTSEVA, G.I.

Methods of physical exercises during the active phase of
rheumatic fever in school children as applied in hospitals.
[Trudy] GIDUV no.35:151-164'62. (MIRA 16:6)

1. Iz kafedry vrachebnogo kontrolya za fizicheskim vospi-
taniyem i lechebnoy fizicheskoy kul'tury i II-y kafedry
pediatrii (zav. - dotsent G.I.Zaytseta) Leningradskogo
gosudarstvennogo ordena Lenina instituta usovershenstvova-
niya vrachey.

(RHEUMATIC HEART DISEASE) (EXERCISE THERAPY)

ZAYTSEVA, G.I., dotsent; CHEZHINA, A.I. (Leningrad)

Organization of control measures for reducing child mortality
in a consolidated region. Sov. zdrav. 21 no.9:22-29 '62
(MIRA 17:4)

1. Iz 2-y kafedry padiatrii (zav. - dotsent G.I. Zaytseva)
Leningradskogo instituta usovershenstvovaniya vrachey imeni
S.M.Kirova i ob'yedineniya Leningradskoy detskoy bol'nitsy
imeni N.K.Krupskoy (glavnyy vrach - zapluchennyy vrach RSFSR
A.I.Chezina).

ZAYTSEVA, G.I., dotsent

Prevention of candidomycosis of the internal organs in children.
Vop.okh.mat. i det. 2 no.1:41-45 Ja-P '57. (MLRA 10:2)

1. Iz II kafedry pediatrii (zav. - dotsent G.I.Zaytseva) Leningrad-
skogo instituta usovershenstvovaniya vrachey imeni S.M.Kirova (dir. -
prof. N.I.Blinov)
(ANTIBIOTICS) (MONILIASIS)

ZAYTSEVA, G.I., Kandidat meditsinskikh nauk; BYSTROVA, V.V.; NALYUBINA, G.A.

Visceral candidomycosis in children. *Pediatrila* 39 no.3:56-62
My-Je '56.

(MLRA 9:9)

1. Iz filiala kafedry pediatrii (zav. - dotsent G.I.Zaytsev) i
kafedry patologicheskoy anatomii (zav. - prof. P.V.Sipovskiy)
Leningradskogo instituta usovershenstvovaniya vrachey imeni S.M.
Kirova (dir. - prof. N.I.Blinov)

(MONILIASIS, IN inf. and child etiol. and pathogen.
antibiotics, in child.)

(ANTIBIOTICS, inj. eff.
moniliasis in child.)

AVIDON, D.B.; ZAYTSMVA, G.I.

Surgery for anomalies of the duodenum complicated by vitamin K deficiency in newborn. *Pediatrics* 39 no.2:72-75 Mar-Apr '56.
(MLRA 9:8)

1. Iz khirurgicheskogo otdeleniya (zav. D.B.Avidon) Detskoy bol'nitsy imeni Raukhfusa (glavnyy vrach V.A.Vinogradova)
(DUODENUM, abnormalities,
with vitamin K defic. in newborn, surg. (Rus))
(ABNORMALITIES,
duodenum, with vitamin K defic. in newborn, surg. (Rus))
(VITAMIN K, deficiency
with duodenal abnorm. in newborn, surg. (Rus))

ZAYTSEVA, G.I.

MASLOV, M.S., professor, zasluhenyy deyatel' nauki, deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR; ZAYTSEVA, G.I., kandidat meditsinskikh nauk, sekretar'; KURYLEVA, O.M.; BRONSHTEIN, A.I.; PETROVA, Ye.P.; MALAKHOVSKAYA, D.B.; ITINA, N.A.; MAKAROVA, V.V.; RYBAKOVA, T.N.; ORBELI, L.A., akademik; VOLOVIK, A.B., professor; TUR, A.F., professor; BYSTROLETOVA, G.I.; DANILEVICH, M.G., professor; KUZMICHEVA, A.G., dotsent; BEKHTEREVA, M.I.; ALEKSANDROVA, V.R.

Minutes of the meetings of the Leningrad Society of Pediatricians. Vop. pediat. 21 no.2:60-62 Mr--Ap '53. (MLRA 6:6)

1. Leningradskoe obshchestvo detskikh vrachei. 2. Akademiya meditsinskikh nauk SSSR (for Maslov). (Reflexes) (Scarlet fever)

ZAYTSEVA, G. I.

Children - Diseases

Diagnostic errors in tuberculosis in children. Reviewed by G. I. Zaytseva. Vop. pediat. I okhr. Mat. i det. 20 no. 1 (1952)

Monthly List of Russian Accessions, Library of Congress, August, 1952. UNCLASSIFIED.

ZAYTSEVA, G. I.

Obstetrics

Rh factor and its significance in obstetrics and pediatrics. Reviewed by G. I. Zaytseva.
Vop. pediat. i okhr. mat i det. 20 no. 1, 1952.

Monthly List of Russian Accessions. Library of Congress. August, 1952. UNCLASSIFIED.

The Hall effect, electrical resistance, and

S/776/62/000/025/001/025

parameter. Should the relative maximum in ER and galvanomagnetic effects be confirmed by subsequent experiments, then its identification should open new possibilities in searches for alloys with relatively small values of the TEC. There are 10 figures, 1 table, and 8 references (6 Russian-language Soviet and 2 English-language: Smith, I. Physica, no.17, 1951, 612; Owen, E., Yates, E., Sully, A., Roy. Phys. Soc., Proc. no.49, 1937, 316).

Card 3/3

The Hall effect, electrical resistance, and

S/776/62/000/025/001/025

magnetization was measured by the ballistic method on ellipsoidal specimens. The electrical resistance was measured on 0.2-mm-diam specimens appx. 50 cm long. Accuracy of measurement: appx. 3%; accuracy of repeat measurements made on the same specimen: 0.4%. Hall-effect measurements were made at room T and at N T (80°K). measurements of magnetization and electrical resistance (ER) were made at both Ts, plus the H T (20°K). The graphs of the saturation magnetization show a monotonic change up to a composition corresponding to appx. 10% Mn, at which point a break occurs, beyond which the changes in magnetization differ substantially between annealed and strain-hardened specimens. The ER graphs show a maximum at 10% Mn for all specimens; beyond that value a different behavior obtains for annealed and strain-hardened specimens. The Hall constant R also attains a maximum at 10% Mn, with the value of that maximum varying with T. The R of strain-hardened alloys is higher than that of annealed alloys for all compositions except for the Mn-free alloy. It is noted that increased values of the ER in the region of 10%-Mn alloys correspond to a reduction in the value of the thermal expansion coefficient (TEC). Inasmuch as there is no phase-transformation boundary in the region investigated, it is postulated that the alloy with 10% Mn lies in a region in which a change in atomic and electronic structure occurs. Confirmation of this postulate is found in the conservation of the anomaly of the lattice parameter at high T. It is noted that the Hall constant is the most structure-change-sensitive

C2nd 3/3

S/776/62/000/025/001/022

AUTHORS: Zaytseva, G. A., Fedotov, L. N.

TITLE: The Hall effect, electrical resistance, and saturation magnetization of alloys with anomalous thermal expansion.

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. Sbornik trudov, no. 25. Moscow, 1962. Pretsizionnyye splavy. pp. 33-40.

TEXT: This experimental investigation was devoted to a study of the electrical conductivity, the Hall effect, and the magnetic saturation of alloys of the system Fe-Ni-Mn that lie along the line Fe_2Ni-Ni_3Mn in the phase diagram and which lie in the region of the γ solid solution. The study employs the Turnakov-Trenov phase diagram; the chemical compositions of the alloys in weight and atom-% are tabulated. The specimens were tested in 2 states: (1) After vacuum anneal, comprising 4-hr holding at $1,100^\circ C$, cooling to 500° at $50^\circ/hr$, then stepwise cooling with 2-hr holds at 450, 400, 350, 300, and 250° ; (2) after cold working (80% deformation for wires and plates). Measurements of the Hall effect were performed by the Volkenshteyn-Fedorov method which is described here in detail. The error in the determination of the Hall constant R is estimated to be appx. 1.5% of the computed value. The

Card 43
CART 4/3

ZAYTSEVA, G.A.; FEDOTOV, L.N.

Hall effect, electrical resistance, and the magnetization saturation of alloys with thermal expansion anomalies. Sbor. trud.

TSNIICHM no.25:33-40 '62. (MIRA 15:6)

(Nickel steel--Thermal properties) (Electromagnetism)
(Hall effect)

BNLOV, K.P.; ZAYTSEVA, G.A.

Calvanomagnetic properties of ferromagnetic materials near the
Curie point. Fiz. met. i metalloved. 1 no.3:404-409 '55.

(MLRA 9:6)

1.Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Ferromagnetism)

ZANTSEVA, G.A.; MODISOVA, Ye.N.; PONOMAREVA, I.S.; TRUBNIKOVA, S.G.

Investigating a helical antenna in centimeter wave range. ^{Spor.st.}
LITMO no.47:14-20 '59. (MIRA 16:10)

FEDOTOV, L.N.; ZAYTSEVA, G.A.

Saturation magnetization of ferromagnetic alloys in low
temperature fields. Sbor.trud.TSNIICM no.23:121-128 '60.
(MIRA 13:7)

(Alloys--Magnetic properties) (Metals at low temperatures)

LIKUMOVICH, A.G.; GONBIN, N.S.; RUTMAN, G.I.; LAYTSEVA, G.A.; PONOMAREVA, A.P.

Improved process of butylene dehydrogenation in the synthetic
rubber plant in Sterlitamak. Khim. prom. 41 no.7:532-535 40 1/85.
(MIRA 18:8)

The saturation magnetization ...

28553
3/137/61/000/009/030/087
A060/A101

between room temperature (287°K) and the temperature of liquid nitrogen (78°K) I_s changes by 9%, between the temperature of liquid N_2 and the temperature of liquid H_2 (20.4°K) by 1.6%, and between the temperature of liquid to the temperature of solid H_2 (14°K) by 0.1%. The small observed changes in I_s in the region between 20 and 14°K accord with the preliminary estimated results. In the entire interval of temperatures (290-14°K) the experimental points are situated better in the curve $I_s(T^{3/2})$ than in the curve $I_s(T^2)^*$. From a comparison of the graphs obtained the conclusion is drawn that as the temperature goes down, the quadratic dependence of I_s on T varies according to a weaker temperature dependence, but the linear dependence does not match either. It is concluded that the power n in the law $I_s \sim T^n$ ** should lie between the limits $1 < n < 2$.

A. Rusakov

[Abstracter's notes: Complete translation.
* Apparent misprint: corrected from $I(T^2)$.
** Apparent misprint: corrected from $I \sim T^n$.]

Card 2/2

24.2200 also 8904, 8906

28553
S/137/61/000/009/030/087
AO60/A101

AUTHORS: Fedotov, L.N., Zaytseva, G.A.

TITLE: The saturation magnetization of ferromagnetic alloys in the low temperature region

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 9, 1961, 9, abstract 9Zh52 ("Sb. tr. Tsentr. n.-i. in-t chernoy metallurgii", 1960, no. 23, 121 - 128).

TEXT: To clarify the dependence of saturation magnetizability I_s on temperature T in the sub-hydrogen temperature region, three specimens of Fe-Ni alloys were studied, containing 34.6, 68.8 and 75.8% Ni, and one specimen of a Fe-Al alloy with 24.9% Al content. I_s was measured by the compensation (zero, null) ballistic method, ensuring a precision of relative measurements of 0.1-0.2%. The data obtained do not give a basis for definite conclusions as to a functional dependence, besides the linear one, in the indicated region of accuracy. The data of I_s measurements at $T = 14^\circ\text{K}$ are of interest, since they support the result on the side of low temperatures for the measurements at $T = 20^\circ\text{K}$. The results of I_s measurement in a field of 1,800 oersteds are given. From these data follows that

Card 1/2

X

ZAITSOVA, F.V.

ZAITSOVA, F.V.,
S. N. DANILOV, ZhPKh 12, 85-98, (1939)

ZAYTSEVA, B. F.

SELEDKOV, N.T., inzhener; ZAYTSEVA, B.F., inzhener.

Prefabricated ventilation ducts. Rats.i izobr.predl.v stroi. no.73:
27-29 '54. (MLRA 7:6)
(Ventilation)

FREDOV, V. N., ZAYTSEVA, A. YA.

Dies (Metal-Working)

Increasing the durability of dies for hot and cold stamping by means of treating with metal shot. Avt. trakt. prom. no. 4, 1952.

Monthly List of Russian Accessions. Library of Congress, August 1952. UNCLASSIFIED.

GORYACHEVA, R.I.; ZAYTSEVA, A.V.; NESMEYANOV, A.N., akademik,
glav. red.; ISAKOVA, O.V., otv. red.; LIKHTENSHEYN,
Ye.S., otv. red.; SHUNKOV, V.I., otv. red.

Aleksandr Vasil'yevich Topchiev. (1907-1962). Moskva,
Nauka, 1964. 160 p. (Materialy k bibliografii uchenykh
SSSR. Seriya khimicheskikh nauk no.34) (MIRA 18:3)

1. Akademiya nauk SSSR. 2. Chlen-korrespondent AN SSSR
(for Shunkov).

USSR / Cultivated Plants. Cereal Crops,

M-3

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 58545

Author : Zaytseva, A. V.

Inst : Far East Scientific Research Agricultural Institute

Title : New Promising Intervariety Corn Hybrid for Maritime Kray

Orig Pub : Byul. nauchno-tekhn. inform. Dal'nevost. n.-i. in-ta s.-kh., 1957, No 4, 11-13

Abstract : An intervarietal hybrid, Primorskiy 5, was developed by the Maritime experimental station. The variety has an average-ripening period (95-105 days). The crop of dry grain in cobs was 60.5 cwt/ha while the crop of paternal varieties was 46-49.7 cwt/ha; the absolute grain weight 250 g; the yield of the grain was 78-81%. This variety is recommended for universal introduction in the Maritime Kray.

Card 1/1

KLIMOV, Yu.M.; CHIKIN, V.V.; ANISIMOV, N.I.; BARSKOV, I.M.; VINOGRADOV, Yu.V.; GAVRILOV, A.N.; GAUKHMAN, L.A.; GOLOV, A.P.; GOL'DMAN, L.S.; GHEBENNIKOV, G.I.; YEFIMOV, A.N.; ZALUTSKIY, M.S.; ZAYTSEVA, A.V.; OIYRYSH, A.I.; KANDARITSKIY, V.S.; KAPRANOV, I.A.; KOVALEV, N.I.; KOVALEVSKIY, K.A.; KOLOSOV, A.F.; KRIVOV, A.S.; KRYLOV, R.M.; LEVITAS, A.G.; MALYGIN, M.A.; MORALMICH, Yu.A.; MOTYLEV, A.S.; NESTEROV, M.V.; NIKOL'SKIY, A.V.; ORLOV, G.M.; ORLOV, Ya.L.; PARENSKIY, V.M.; POLYAKOV, A.S.; RUBIN, V.I.; SVANIDZE, K.N.; STRIGIN, I.A.; TAKOYEV, K.F.; TRUBNIKOV, S.V.; CHERNYSHEVA, L.N.; CHESNOKOV, N.Ye.; SHAMBERG, V.M.; STRUMILIN, S.G., akademik, red.; ANTOSHENKOVA, L., red.; MIKAELYAN, H., red.; MUKHIN, Yu., tekhn.red.

[Dictionary of the seven-year plan from A to Z] Slovar' semiletki ot A do IA. Moskva, Gos.izd-vo polit.lit-ry, 1960. 397 p.
(MIRA 13:7)

(Russia--Economic policy)

185T29

USSR/Engineering - Welding, Acetylene Mar 51

"Investigation of the Process of Decomposing Calcium Carbide With Water," I. I. Strizhevskiy, Cand Chem Sci, A. S. Zaytseva, M. M. Sneychnik, Engineers, VNIIAvtogen

"Avtogen Delo" No 3, pp 12-15

Existing volumetric methods for detg rate of carbide decompn are not exact since vol of acetylene produced depends also on temp and pressure. App was constructed for calorimetric detn, based on assumption that increase in water temp is practically proportional to increase in amt of

185T29

USSR/Engineering - Welding, Acetylene (Contd) Mar 51

decomposed CaC_2 . Discusses and graphs decompn rates of CaC_2 granulated to various sizes at initial water temps of 2, 17, 40 and 60°C.

185T29

ZAYTSEVA, A. S.

LAZAREV, A.N.; ZAYTSEVA, A.S.

Valency vibrations of the hydroxyl group in seigneticoelectric
crystals of KH_2PO_4 and KD_2PO_4 . Fiz. tver. tela 3 no. 12:3026-
3028 D '60. (MIRA 14:2)

1. Institut khimii silikatov AN SSSR.
(Hydroxyl group--Spectra) (Potassium phosphate crystals)

ZAYTSKOVA-PODOLCHENKO, A.N., aspirant; SHUMAKOVICH, Ye.Ye., prof., nauchnyy
sovetnik

Immunization of cattle and sheep against dictyocaulosis.
Veterinariia 42 no.7:51-52 JI '65. (MIRA 18:?)

1. Vsesoyuznyy institut gel'mintologii imeni akademika Skryabin.

PASKAL'SKAYA, M. YU. (Candidate of Veterinary Sciences), ZAYTSEVA, A. N. (Senior Scientific Co-Worker) and SEMENOV, A. I. (Veterinary Surgeon, Novosibirsk NIVS)

"Treatment of Dictyocephalus infestation in sheep"
Veterinariya, vol. 39, no. 6, June 1962 pp. 41

PASKAL'SKAYA, M. Yu., kand. veterin. nauk; ZAYTSEVA, A.N., starshiy
nauchnyy sotrudnik; SEMENOV, A.I., veterinarnyy vrach

Eliminating dictyocaulosis in sheep. Veterinariia 39 no.6:41
Je '62 (MIRA 18:1)

1. Novosibirskaya nauchno-issledovatel'skaya veterinarnaya
stantsiya.

Intensification of the Process of Pressing
Aminoplastics

64-58-2-13/16

supply of the high-frequency plants with control apparatus, an improvement of the quality and a standardization of the aminoplastics.
There are 5 tables and 0 references.

ASSOCIATION: Karacharovskiy zavod plastmass (Plant
for Plastics)

AVAILABLE: Library of Congress

1. Plastics--Processing
2. Plastics--Temperature factors
3. Plastics--Electrical factors
4. Materials--Production

Card 3/3

. Intensification of the Process of Pressing
Aminoplastics

64-58-2-13/16

can cause unfavorable phenomena in some articles. The use of high-frequency current for heating aminoplastics showed that also a considerable shortening of the period of pressing exposure was achieved, no degradation of the physico-chemical and physico-mechanical properties, respectively, of finished products having been observed. The investigations of the influence of the pressing temperature showed that the shortest period of pressing exposure is at $150 \pm 3^{\circ}\text{C}$, differentiations being mentioned referring to the quality and individual properties, respectively, of the finished product. Data in tables are given on the results obtained just as well as investigations of the quality of the finished product. The experiments carried out at various specific pressure (265, 250, 200 and 100 kg/cm^2) yielded positive results with the exception of the last lowest value at which the sample showed a pad after the experiment. It is recommended to employ the above mentioned ideas; at the same time it is necessary to carry out a reinforcement of the presses as well as the

Card 2/3

64-58-2-13/16

AUTHORS: Pik, I. Sh., Zaytseva, A. M.,
in Collaboration With Iofe, S. S.

TITLE: Intensification of the Process of Pressing Aminoplastics
(Intensifikatsiya protsessy pressovaniya aminoplastov)

PERIODICAL: Khimicheskaya Promyshlennost', 1958, Nr 2, pp. 54-56
(USSR)

ABSTRACT: In the below mentioned plant for plastics it was decided upon to introduce a differentiation of the pressing exposure, a tableting, high-frequency heating as well as higher temperatures and lower specific pressure in the pressing of aminoplastics for the purpose mentioned in the title. Corresponding to the mentioned hardening velocities it was found that the use of differentiated exposures gives the possibility of increasing the productivity by 6%. The tableting carried out with the investigated aminoplastics showed that at various temperatures of pressing a shortening of the exposure could be obtained. Then it is pointed out that the tableting of aminoplastics must be improved, and besides it was mentioned that tableting

Card 1/3

ZAYTSEVA, A.M.

Determining critical wavelength of the lower type for a non-symmetrical Π -wave guide and a Π -wave guide. Uch.zap.MGPI
138:207-210 '58. (MIRA 13:5)
(Wave guides)

Theory of the formation of large ... S/169/62/000/008/052/090
E202/E192

Taking into consideration in the calculations the last mentioned, leads to a conclusion that the accumulation of large amounts of droplet water and hail takes place in the zone before the top of the cloud, which explains the high intensity and short duration of the showery precipitates and hail. The pressure of the large droplet fraction in the upper part of the cloud lowers the value of the anabatic velocity of the stream down to v_{cr} , and the corresponding quantity of water holding may be calculated from the formula:

$$q = \frac{m}{\rho g z} (w_{max}^2 - v_{cr}^2),$$

where m - the mass of air in a unit volume. The action on the upper part of the growing heavy cumulus with $w_{max} > v_{cr}$, with surface active or hygroscopic agents does not give a positive effect. Prevention or even weakening the effect of a hail is possible only by full crystallisation of the supercooled fraction of the liquid droplets entering the upper part of the cloud. 4-10 kg of reagent are required to destroy the hail centre.

Card 4/4 [Abstractor's note: Complete translation.]

Theory of the formation of ...

S/169/62/000/008/052/090
E202/E192

In the case when the temperature of the cloud's top is lower than the temperature of natural crystallisation, hail is formed in the cloud and the size of the falling hail particles is determined by the relation:

$$R \geq 1/8 w_{\max}^2 \rho(z) \rho(0),$$

where $\rho(z)$ and $\rho(0)$ are air densities at levels z and y of the Earth's surface. The growth of hail to the size $R \sim 2.4$ cm at $w_{\max} \approx 10 - 20$ m/sec occurs substantially above the level w_{\max} at the beginning of the katabatic branch of hail

trajectory. The time necessary for the growth of hailstones to the above dimensions depends chiefly on the value of w_{\max} and varies within the interval of 20 - 70 min. The terminal dimensions of hailstones depend very little on the vertical thickness of the cloud, and are determined chiefly by the moisture content of the air masses entering the cloud, the height of the zero isotherm, the value and the stability of w_{\max} , and also by the velocity gradient of the vertical streams along their height.
Card 3/4

Theory of the formation of large ... S/169/62/000/008/052/090
E202/E192

As a result of these calculations it was established that with the greater velocities of the vertical streams the drop does almost cease to grow during the anabatic branch of the trajectory. The droplets are retained in the upper part of the cloud, where the velocities are small and the principal growth of the droplets or hailstones occurs prior to reaching the upper portion of the cloud. With the aqueous exchange of 10^{-6} g/cm³, and the coefficient of catchment of 0.85, the position of the apex of the trajectory depends principally on the height z_1 , at which $w = w_{\max}$ and

the degree of decrease of w with height at which $z > z_1$. With the velocity of the anabatic stream w_{\max} greater than the velocity attained by the falling droplet with a radius of 2.5 mm of the v_{cr} , a chain reaction is started which leads to the accumulation of a large quantity of moisture in the upper part of the cloud and to the appearance of intensive showers. A cloud with $w_{\max} < v_{cr}$ gives only a very short-duration and weak shower.

Card 2/4

S/169/62/000/008/052/090
E202/E192

AUTHORS: Bibilashvili, N.Sh., Zaytseva, A.M., Kuz'min, Ye.A.,
Lapcheva, V.F., Ordzhonikidze, A.M., and
Sulakvelidze, G.K.

TITLE: Theory of the formation of large drop fractions in
the heavy radial cumulo-nimbus clouds, and factors
affecting these processes

PERIODICAL: Referativnyy zhurnal, Geofizika, no.8, 1962, 80,
abstract 8 B 550. (In the collection: "Issled.
oblakov, osadkov i grozovogo elektrichestva" ('Studies
of clouds, precipitations and thunderstorm electricity')
M., AN SSSR, 1961, 3-6).

TEXT: Using observational data from the strato-cumulus, .
cumulus and heavy cumulus clouds in the years 1956-1958 in Trans-
Caucasus and Caucasus, the growth of clouds' droplets was
calculated according to the method of Bouen and Kiryukhin, in
terms of the gravitational coagulation, assuming linear increase
of the anabatic velocity w , with respect to the height z . ✓

Card 1/4

The growth of drops ...

S/169/62/000/004/028/103
D228/D302

or other substances, which accelerate the gravitational coagulation of drops, upon the upper part of a thick cumulus water-drop cloud. However, the continuous action on the cloud's lower part may be an effective means of combating hail in consequence of the "washing out" of the lower part and the coarsening of the nuclei at its summit. The episodic effect of crystallizing substances on the supercooled part of thick cumulus cloud can lead to the artificial development of hail. In the authors' opinion the most effective way of preventing hail is the full crystallization of the cloud's supercooled part. Questions of the study of the microstructural cloud parameters that are necessary for the advanced detection of hail foci are most pressing at the present time. Questions of the method of introducing active matter into a cloud and of the search for new reagents are also important. /-Abstracter's note: Complete translation. /

Card 4/4

S/169/62/000/004/025/103
D228/D302

The growth of drops ...

largely governed by the vertical flow magnitude. If the zero isotherm is located well above the maximum velocity level, the hailstone dimensions are determined by the velocity magnitude at the zero isotherm level. The radius of a falling hailstone satisfies the following disparity, which is one of the criteria for the likelihood of hail fall:

$$R < \frac{2\omega_0^2 \rho_z}{\rho_0}$$

where ω_0 is the ascending current velocity, ρ_0 is the air density at a standard pressure, and ρ_z is the air density at a set height.

The ascending current velocity also determines the water content of a cloud's upper part, which may reach 20 g/m³ at the beginning of precipitation. The amount of precipitation from intra-mass cumulus clouds depends, too, on the ascending current velocity. Hail processes cannot be averted by the episodic effect of hygroscopic

Card 3/4

S/169/62/000/004/025/105
D228/D302

The growth of drops ...

the physical bases of the effects on hail processes are also illuminated. The results, accumulated during the study of mass convective clouds on the El'brus and the Alazani expeditions of 1954-1959 are used as the original experimental material. In conclusion the following deductions are formulated: The accumulation of large water reserves in a cloud in liquid or solid phases occurs as a result of the decreasing velocity of ascending currents with altitude. This creates favorable conditions for the coagulation growth of the largest drops or of soft hail at the expense of the fine-drop liquid fraction, entering from below. A "locking-layer" in which a chain reaction in the watery cloud, or a considerable growth of hail particles, occurs, is formed in the zone of the maximum vertical-current velocity. On the whole the hailstone dimensions depend on the presence in the cloud's middle part of stable and prolonged (not less than 30 - 90 min) vertical currents with speeds of 10 - 25 m/sec, as well as on the height of the zero isotherm, and not on the thickness and the water content on the cloud's lower part. If the zero isotherm is situated at the level of maximum vertical velocities, or below this level, the hailstone sizes are

Card 2/4

3.5110

AUTHORS:

Bartishvili, G. S., Biblashvili, N. Sh., Zaytseva, A. M., Lapcheva, V. F., Ordzhonikidze, A. A. and Sulakvelidze, G. K.

TITLE:

The growth of drops and hailstones in thick cumulus clouds with allowance for the change in the velocity of vertical currents with height and the physical bases of the effect on hail processes

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 4, 1962, 19, abstract 4B134 (V sb. Fiz. oblakov i osadkov, v. 2 (5), M., AN SSSR, 1961, 146-148)

TEXT: In the article a method is given for calculating the growth of cloud drops and hail particles at the expense of coagulation processes, and the influence of the character of the change in the velocity of ascending currents on the growth of cloud particles is investigated. The question of calculating the water content of thick cumulus cloud and the amount of precipitation is considered;

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FISHER, I.Z.; ZAYTSEVA, A.M.; PROKHORENKO, V.K.

Statistical thermodynamics of point electrical charges. Zhur.
fiz.khim. 35 no.8:1877-1878 Ag '61. (MIRA 14:8)

1. Belorusskiy gosudarstvennyy universitet.
(Dynamics of a particle)

SOV/20-128-3-24/58
On the Influence Exerted by a Variation of the Vertical Wind Components on
the Formation of Shower Precipitations and Hail

the cloud, hail may be prevented or at least reduced (thus preventing a gravitation-dependent increase in the hailstones). If place and time of the center formation were known, hail could be prevented with 4 to 10 kg of silver iodide. Since these quantities are unknown, an amount of silver iodide larger by two or three orders is required for hail prevention. There are 3 figures, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: El'brusskaya ekspeditsiya Instituta prikladnoy geofiziki
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(Elbrus Expedition of the Institute of Applied Geophysics of
the Academy of Sciences, USSR)

PRESENTED: May 25, 1959, by I. N. Vekua, Academician

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On the Influence Exerted by a Variation of the Vertical Wind Component on
the Formation of Shower Precipitations and Hail

at W_m from 10 to 20 m/sec, primarily occurs in the cloud part near the peak, i.e. at the origin of the descending branch of the hailstone trajectory. The authors write down a corresponding formula for the size of the hailstone. The time required for an increase in the hailstone largely depends on W_m , and varies between 20 and 70 min. The definite size of the hailstones depends but little on the vertical thickness of the cloud. Completely new results are obtained if the variations in the vertical component of the velocity of air currents with the altitude are taken into account. This permits, among other things, the following conclusions: 1) A large amount of droplike water and hail is piled up in the cloud part near the peak. 2) The influence exerted by surface-active and hygroscopic substances on the upper part of the forming massy cumulus does not offer any positive effect at $W_m > V_k$. V_k denotes the critical velocity. 3) By complete crystallization of the droplike liquid, undercooled fraction which enters

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the Formation of Shower Precipitations and Hail

upper part, the cloud temperature is lower by $0.5-1.0^{\circ}$ than it is in the surrounding medium. 3) In the part before the peak, the cumulus becomes rapidly aqueous. Yet in the lower and medium part, the water content and the spectrum of the water of the water drops vary but little. The size of the drops is given. On the basis of these data, the increasing size of the drops contained in cumuli and massy cumuli, which is due to gravitational coagulation was calculated by a method devised by E. Bowen (Ref 4) and B. V. Kiryukhin. At high velocities of the vertical currents, the drops almost do not increase on the ascending branch of the trajectory. Formulas for the dependence of radius R of the drop on altitude z are written down. The drops are retained in the upper part of the cloud, where velocities are low. The principal increase in the drop or the hailstone occurs in the cloud range near the peak. If the upper part of the cumulus has a temperature higher than that of natural crystallization, then the cloud remains droplike liquid. However, hail occurs, if the temperature of the cloud peak is below that of natural crystallization. The increasing size of the hailstones up to $R \sim 2-4$ cm

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3(7)

AUTHORS: Bibilashvili, N. Sh., Zaytseva, A. M., Lapcheva, V. P.,
Ordzhonikidze, A.A., Sulakvelidze, G. K.

SOV/20-128-3-24/58

TITLE: On the Influence Exerted by a Variation of the Vertical
Wind Component on the Formation of Shower Precipitations and
Hail

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 3, pp 521-524
(USSR)

ABSTRACT: Observations made in Transcaucasia and the Caucasus in 1956-
1958 on stratocumuli, cumuli, and massy cumuli showed the
following: 1) The vertical component of the velocity of cur-
rents, determined by radar methods, amounts to 0.1 - 0.3 m/sec
for stratocumuli, 5 m/sec for cumuli, and 10-15 m/sec for
massy cumuli. Several wind gusts attain velocities of 25 m/sec.
The velocity W of vertical currents within the cloud increases
with rising altitude up to a maximum, W_m , in the upper part
of the cloud, and then decreases rapidly. 2) The temperature
of the cumulus during its formation is higher by $0.5-1.0^\circ$ than
the temperature of the surrounding medium at the same altitude.
During stabilization and decomposition of the cumulus in the

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FISHER, I.Z.; ZAYTSEVA, A.M.

Effect of the hydration of ions on the viscosity of electrolyte solutions. Zhur.strukt.khim. 4 no.3:331-335 My-Je '63.

(MIRA 16:6)

1. Belorusskiy gosudarstvennyy universitet, Minsk.
(Electrolyte solutions) (Hydration) (Viscosity)

FISHER, I.Z.; ZAYTSEVA, A.M.

Effect of the hydration of ions on the volume viscosity of electrolyte solutions. Dokl. AN SSSR 154 no.5:1175-1178 P'64.

1. Belorusskiy gosudarstvennyy universitet im. V.I.Lenina.
Predstavleno akademikom I.I. Chernyayevym.

ZAYTSEVA, A.M.; FISHER, I.Z.

Mobility of hydrated ions. Zhur.strukt.khim. 4 no.2:261-262
Mr-Apr '63. (MIRA 16:5)

1. Belorusskiy gosudarstvennyy universitet, Minsk.
(Hydration) (Ions--Migration and velocity)

ZAYTSEVA, A.M.; FISHER, I.Z.

Motion of hydrated ions in solutions. *Zhur.strukt.khim.* 4 no.1:
3-9 Ja-P '63. (MIRA 16:2)

1. Belorusskiy gosudarstvennyy universitet.
(Electrolyte solutions) (Ions—Migration and velocity)

BARTISHVILI, G.S.; BIBILASHVILI, N.Sh.; ZAYTSEVA, A.M.; LAPCHEVA, V.F.;
OREZHONIKIDZE, A.A.; SULAKVELIDZE, G.K.

Growth of droplets and hailstones in cumulus congestus clouds
taking into consideration altitudinal velocity variations of
vertical streams and physical foundations for controlling processes
of hail formation. Trudy Vysokogor. geofiz. inst. AN SSSR 2:146-168
1961.

(MIRA 14:12)

(Hail)

(Weather control)

PIKAR, I.M.; SOCHINA, N.V.; ZAITSEVA, R.N.

Density microfluctuations in simple liquids. Ukr. fiz. zhur. 9 no.6:
476-480 Ky '64. (SUZA 37:9)

1. Belorusskiy gosudarstvennyy universitet, Minsk.

PEREPELKIN, V.P.; ZAYTSEVA, A.M.; SHORYGINA, N.V.; CHERNOVA, A.G.

Heat resistant materials for radio sockets for use under tropical
conditions. Plast.massy no.8:67-69 '62. (MIRA 15:7)
(Plastics) (Radio--Equipment and supplies)

SOV/58-59-8-18574

Translated from: Referativnyy Zhurnal Fizika, 1959, Nr 8, p 221 (USSR)

AUTHOR: Zaytseva, A.M.

TITLE: The Determination of Critical Wavelength of the Lower Type for Unsymmetrical "П"- and "Ш"-Shaped Waveguides

PERIODICAL: Uch. zap. Mosk. gos. ped. in-ta, 1958, Vol 138, pp 207-210

ABSTRACT: The author verified experimentally the computational formulae obtained by A.Ya. Yashkin (RZhFiz, 1958, Nr 3, 6564) for the critical wavelength of unsymmetrical "П" and "Ш"-shaped waveguides. The measurements were carried out on a 3.18 cm wavelength. The necessary cross-section of the waveguides was obtained with the aid of brass inserts. The agreement between the experimental and computational data lies within the range of measurement errors.

I.F. Dobrovol'skiy

Card 1/1

An investigation of the...

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A160/A101

tion of the recombined grains at the boundary will be inconsiderable. When designing polycrystalline photoelectric converters, the harmful effects of an increased resistance of intercrystalline junctions are eliminated by an additional grid of current taps. In this case, the polycrystalline photoelectric converters seemingly consist of small single monocrystalline photocells connected in parallel. The polycrystalline photoelectric converters are distinguished from single crystalline photocells mainly by the lower resistance of idle run and by the lower density of short-circuit current, and, as a result, by a lower efficiency. The load, light and spectral characteristics of the polycrystalline photoelectric converters are presented. Their main parameters are shown in a table. The maximum spectral sensitivity of the polycrystalline photoelectric converters is to be found in the region of 7,500 - 8,500 Å, the maximum power yielded during solar lighting is 5 - 6 milliwatt/cm². The costs of polycrystalline photoelectric converters with a power of 1 watt are 2 - 3 times lower than those of single crystalline ones. There are 9 references.

V. Shch.

[Abstracter's note: Complete translation]

Card 2/2

1109L

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A160/A101

26.4 V1

AUTHORS: Gliberman, A. Ya., Zaytseva, A. K., Landsman, A. P.

TITLE: An investigation of the possibility of using polycrystalline silicon for the production of photoelectric converters

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 43, abstract 8-3-85t
(In collection: "Teploenergetika". No. 3, Moscow, AN SSSR, 1961, 116 - 128)

TEXT: The polycrystalline Si may be characterized by the sign of conductivity (p or n -type) and a degree of polycrystallinity (by the size of the single monocrystalline grains), and also by its method of growing a crystal bar (with the help of oriented or non-oriented seed crystal). The magnitude of the specific resistance of polycrystals ρ remained unchanged from grain to grain, whereby, at the boundary of the grains, resistance jumps were observed in a more highly-ohmic material ($\rho \sim 1$ ohm-cm and more). No jumps whatsoever were observed in a low-ohmic material ($\rho \sim 0.1$ ohm-cm). In case the dimensions of the grains are larger than the diffusion length of the minority charge carriers, the por-

Card 1/2

The distribution of...

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subject to the Fick law. The impurity diffusion front in Si is steep, i.e. the concentration of the impurity relatively slightly changes along the whole layer and it sharply decreases at a small distance from the p-n transition. The optimum depth of the p-n transition, corresponding to the maximum power yielded by the photoconverter, is mainly determined by the following quantities: by the total magnitude of the surface and volumetric recombination of the carriers, the resistance of the alloyed layer and by the magnitude of the rear resistance. The ultimate magnitude of the most favorable depth of the p-n transition corresponds to the magnitude at which the total action of all enumerated factors passes through the minimum. There are 6 references.

V. Shch.

[Abstracter's note: Complete translation]

Card 2/2

S/058/62/000/008/132/134
A160/A101

AUTHORS: Zaytseva, A. K., Gliberman, A. Ya.

TITLE: The distribution of impurities in an alloyed layer of photoelectric converters

PERIODICAL: Referativnyy zhurnal, Fizika, no. 8, 1962, 44, abstract 8-3-B/yu
(In collection: "Teploenergetika", no. 3, Moscow, AN SSSR, 1961, 100 - 107)

TEXT: A description is given of the method of investigating the surface layer which developed by the diffusion of acceptor impurities (B) in n-type Si or of donor impurity (P) in p-type Si. The investigation of the main parameters of the raw material and of the electrical properties with the degree of pickling of the alloyed layer was carried out on rectangular-shaped samples. The measuring of the Hall effect as a function of the depth of the pickled layer x was conducted on a special installation. The investigations were carried out on a few samples in which the p-n transition came about by the diffusion of P in p-type Si and by the diffusion of B in n-type Si. They revealed that the distribution of the impurity atoms in the alloyed zone has a peculiar character and is not

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